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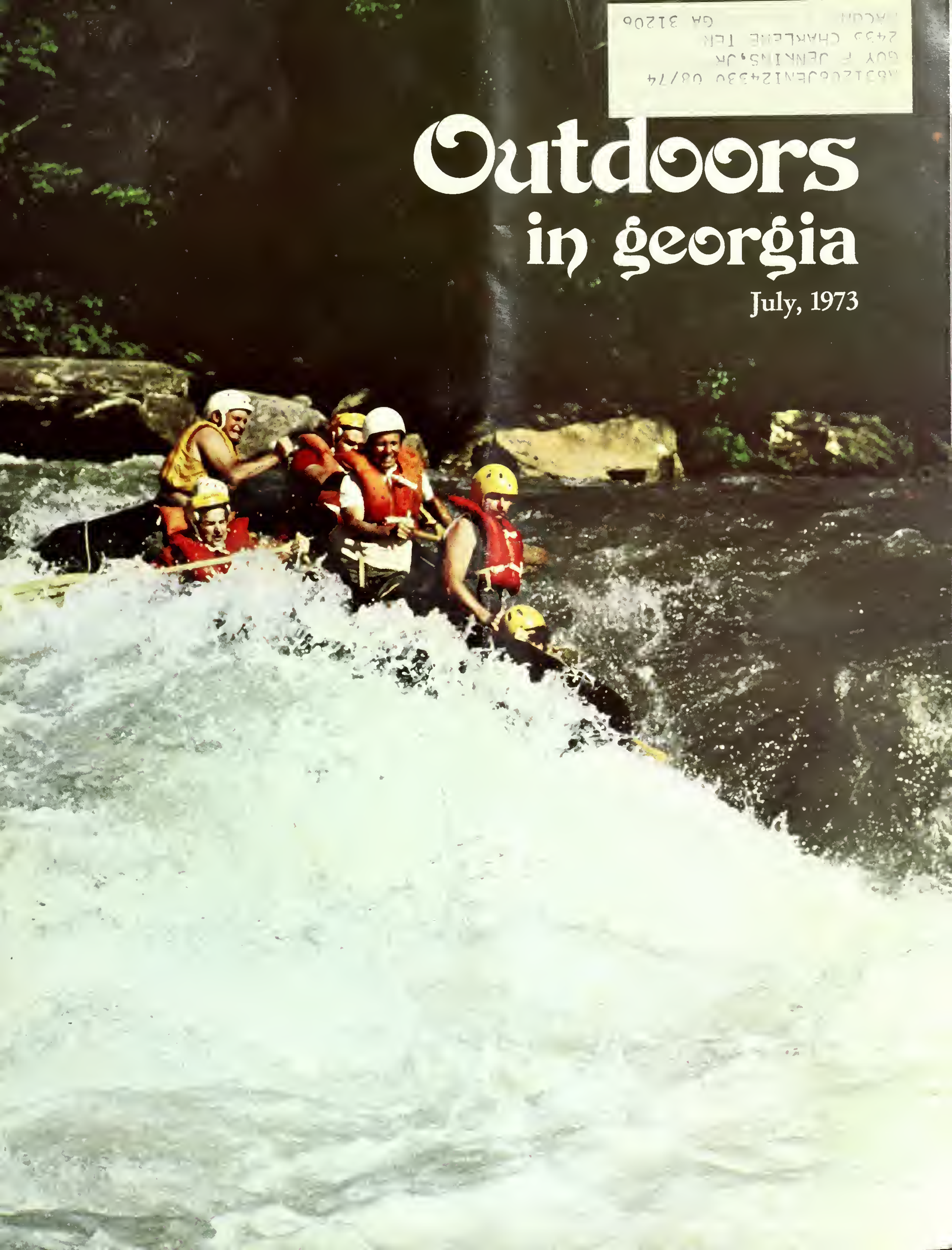
Outdoors in georgia

July, 1973



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July, 1973 Volume II Number 7

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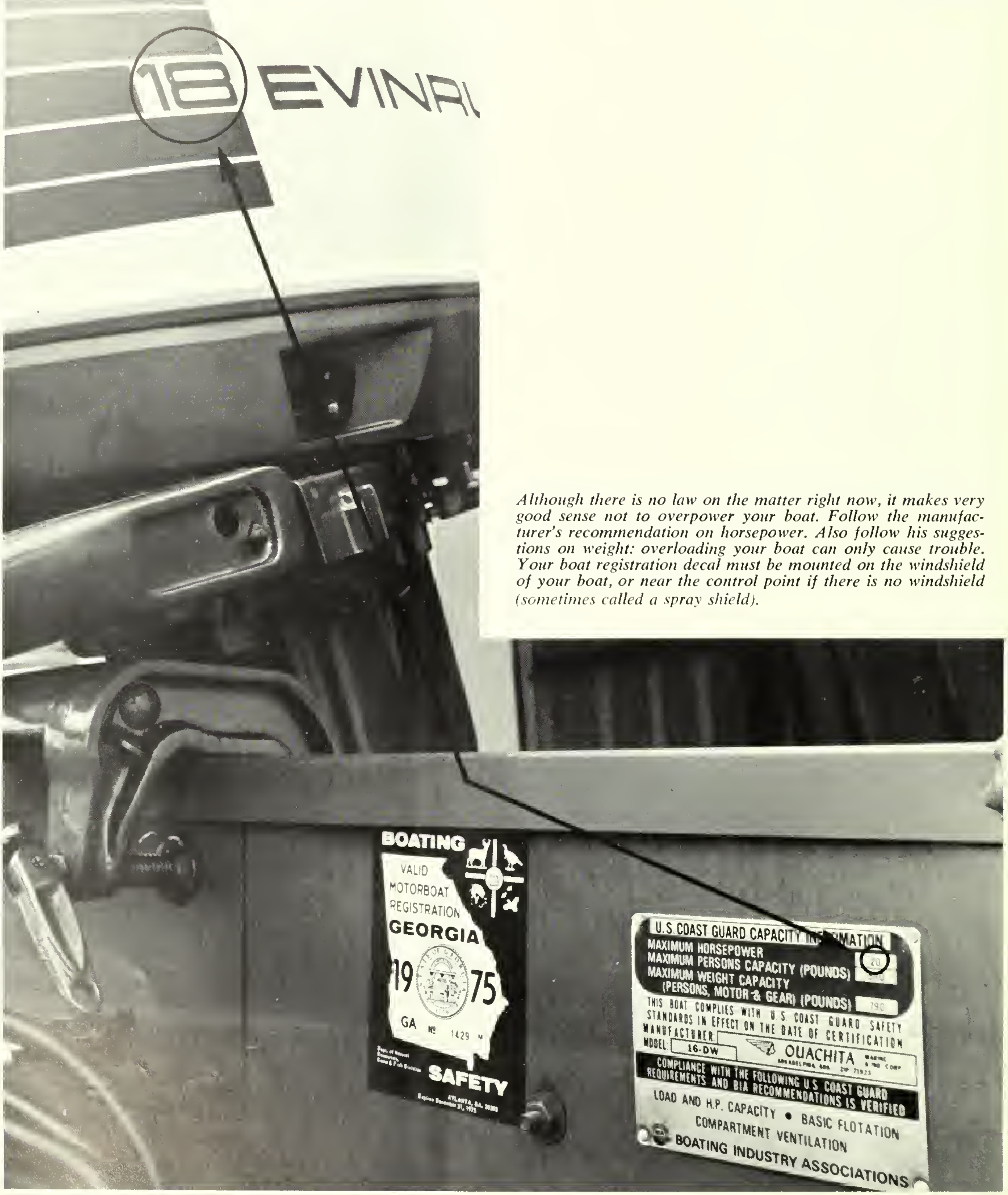
EDITORIAL

Think . . .
and don't let it happen.

New Boating Laws

By T. Craig Martin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U.S COAST GUARD CAPACITY INFORMATION
MAXIMUM HORSEPOWER
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BOATING INDUSTRY ASSOCIATIONS

Although there is no law on the matter right now, it makes very good sense not to overpower your boat. Follow the manufacturer's recommendation on horsepower. Also follow his suggestions on weight: overloading your boat can only cause trouble. Your boat registration decal must be mounted on the windshield of your boat, or near the control point if there is no windshield (sometimes called a spray shield).

In last month's *Outdoors in Georgia* we promised a rundown of the reciprocal agreements on boating between Georgia and her neighbors. We'll also provide a summary of the Georgia Boat Safety Act of 1973, a new law that will make these agreements obsolete after January 1, 1974.

Reciprocal agreements are needed when there is some difference between the laws of one state and those of its neighbors covering a common area. Portions of Lake Hartwell, for example, are located in both Georgia and South Carolina, and there could be conflicts when residents of one state strayed across the border into waters of the other.

A Georgia boater obeying all of his state's regulations might be in conflict with South Carolina law, and the same could hold true of South Carolinians in Georgia waters. So officials try to reach some mutual agreement about rules governing such waters.

In the past, major differences have centered on boat registration requirements. While Georgia has registered all boats *in excess of* 10 horsepower, South Carolina required the registration of all boats of 10 horsepower and chanically propelled boats be regis- above (and currently requires *all* metered). Alabama also requires that all boats be registered.

South Carolina has agreed to delay implementation of its registration requirement until January 1, 1974, to allow joint implementation under the new Georgia rules. And, until January 1, 1974, Georgians who plan to venture into Alabama waters may obtain free registration tags for their boats. These tags will bring Georgians into compliance with Alabama regulations. There are no agreements with North Carolina or Florida, but there have been no problems in the past.

Keep in mind, however, that these agreements apply *only* to shared waters; if you venture into non-contiguous lakes or tributary streams completely inside the borders of our neighbors, you must be prepared to comply with all their boating laws.

These agreements will not be necessary after 1974. Then federal law will require the states to register certain vessels, and provide that boats which are legally registered in one state will be legal in all others. The Georgia Boat Safety Act of 1973 brings Georgia into compliance with the federal law, according to Bob Baker, Coordinator of Special Services and Boating Law Administrator of the Department of Natural Resources.

Your boat registration number must be displayed on each side of the bow, in letters at least three inches tall; and the letters must be clearly visible against the background color of your boat. Be sure that your trailer is carefully adjusted to handle your boat. Here Mike Strong of Gainesville's North Lake Marine makes the final alterations on a new rig, making sure the weight is evenly distributed over the trailer. The Georgia Department of Transportation requires a license tag and current inspection sticker on any boat trailer.

According to Baker, major provisions of the new law are:

REGISTRATION:

While Georgia law now requires registration of all mechanically propelled boats in excess of 10 horsepower, after January 1, 1974, *all* mechanically propelled boats must be registered, as must all sailboats 12 feet or longer. Boats using electric "trolling" motors are considered "mechanically propelled" under this law.

The law excludes boats used *only* on privately owned ponds not open to the public from this provision.

EXPIRATION DATES:

Under current law, all boat registrations expire at the end of the third calendar year after registration. That is, if you register a boat during 1973, that registration expires on December 31, 1975. According to the new act, registrations will expire on the last day of the month of the owner's birth. If, then, you register your boat under this act, the registration would expire three years from the last day of the month you were born, say May 31, 1977.

This provision has two purposes: a) to help spread registrations over the year so that all the thousands of renewals don't flood the licensing office at one time; and b) to make it easier for you to remember your renewal date.

Baker noted that during 1974 new registrations may be for one, two, or three years, a measure designed to stagger renewal dates. All renewals will continue to be for three years, he said, but during this first year some new boat owners or those registering boats under 10 horsepower for the first time may receive a registration good for less than three years (at lower fee, of course).

FEES:

A new registration fee scheduled also will go into effect. As with the current law, the fee will depend on the size of your boat:

class	old fee	new fee
A (up to 16 feet)	$ 5.25	$ 5.00
I (16 to 26 feet)	7.75	12.00
II (26 to 40 feet)	10.25	30.00
III (40 feet and larger)	15.25	50.00

These figures are for three year registrations, so a Class II boat really is paying only $10.00 per year. Income from the new fees will indirectly return to benefit boaters in the form of new appropriations for boating safety, Baker said.

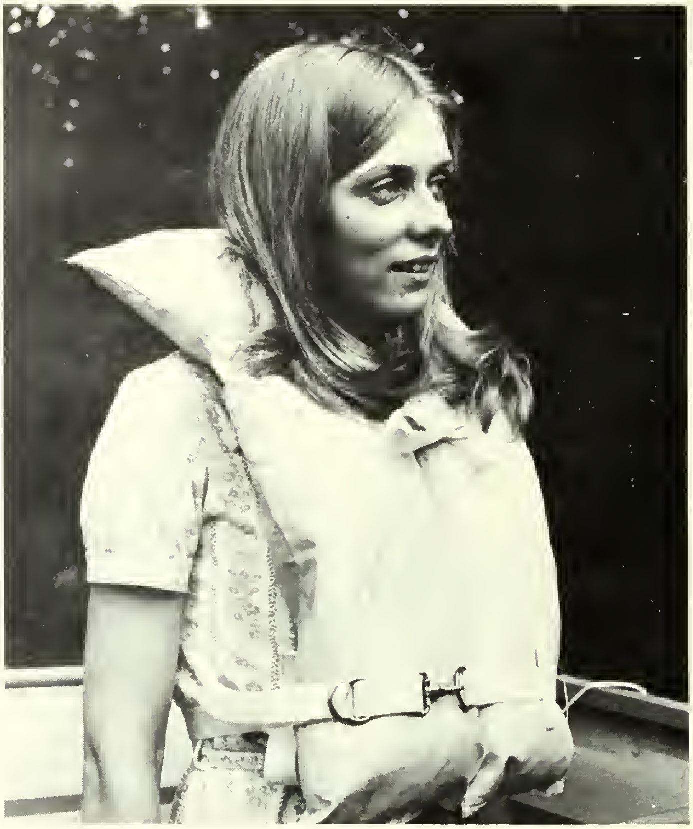
IDENTIFICATION NUMBER:

After January 1, you'll need to provide the *hull identification number* from your boat to register. All boats made after October, 1972, have these numbers (as do some older boats), usually imbedded in the outside of the transom. You won't need this number, of course, if your boat was built before 1972.

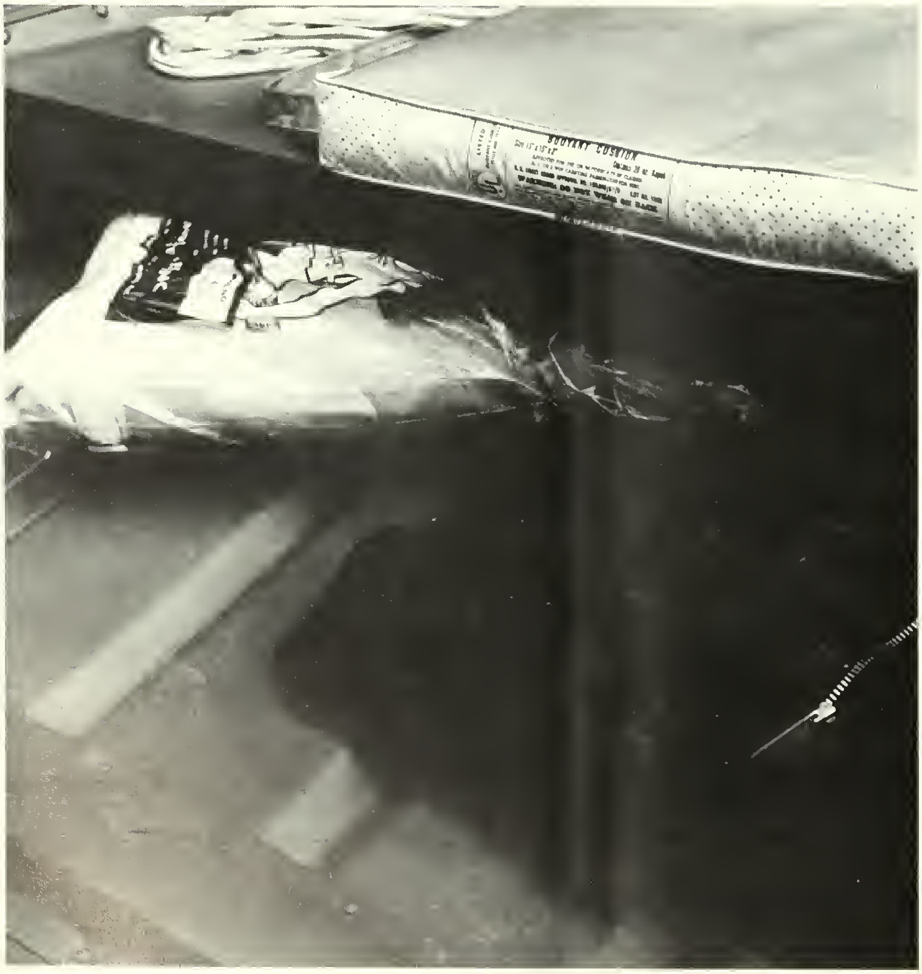
Baker warned home boatbuilders that they must have a hull ID number on any boat they intend to sell or transfer to another owner. Baker said his office will provide the necessary number on request.

FLOATATION DEVICES:

The number and variety of "personal floatation devices" or life preservers you must carry on your boat is determined by its size. But whatever type you are required to carry, it must be in "good and serviceable" condition and readily accessible. Baker emphasized that preservers kept in plastic bags or stored under the bow of a boat would not meet the law's requirements.



This is, perhaps, the most common PFD on Georgia waters. Until recently, it was classified as Type I by the Coast Guard, but now it is a Type II. We couldn't locate a Type I to illustrate for you.



Georgia law now says you must have at least one Personal Flotation Device (PFD) handy for each person on board—preservers in their plastic covers or stuffed under the bow or locked in a storage compartment won't do. See the story for upcoming changes in the PFD regulations.

Floatation devices are divided into four categories:

Type I: The best of all such units, but also the most bulky and cumbersome, Type I units are the old fashioned life jackets that are worn like coats. According to Coast Guard rules, all these must be international orange color.

Type II: These most often are the familiar "bib" type vests that loop around the neck and tie over the chest. Once called Type I units, they recently were reclassified by the Coast Guard.

Type III: These are "special purpose devices" like ski vests (not to be confused with ski belts), the popular Stearns vests, buoyant jackets, etc.

Type IV: These are "throwable"

This is one of the many Type III, or "special purpose," devices approved by the Coast Guard.

Buoyant cushions or rings are classified as Type IV devices, and are distinguished by their handles. The other types are "wearable," while these are made for throwing.

devices, ring buoys or cushions with handles. They are designed to be tossed to someone in the water, and must have convenient handles for him to grasp.

All Coast Guard approved units made after October, 1972, will have tags specifying their type, which should help you avoid some confusion.

To comply with the new law, each Class A vessel (under 16 feet) must have one Type I, II, III, or IV device available for each person aboard.

Class I, II, and III vessels must have one Type I, II, or III device on board for each person, *and* at least one Type IV device readily available. That is, the individuals must have one wearable device each, and there must be some additional throwable device handy.

MISCELLANEOUS:

Ventilation systems are required on all vessels with enclosed fuel tanks, and boats with inboard motors must be equipped with flame arresters. Class II and III vessels must carry some "sound producing appliance," a whistle or horn or other noise making device to warn approaching craft.

The new regulations will require more adequate lights on most craft, but specific measures have not yet been ratified. There also will be some new ruling on fire extinguishers, but it, too, has not yet been worked out.

Regulations governing safe boating operation remain in effect, as do rules on reporting boating accidents. It remains, of course, illegal to operate a boat while under the influence of intoxicants.

These are the major facets of the Georgia Boat Safety Act of 1973. For more complete information, contact either: Mr. Bob Baker, Coordinator of Special Services, Room 717, 270 Washington Street, S.W., Atlanta, Georgia 30334; or Public Relations and Information Section, Department of Natural Resources, Room 719, 270 Washington Street, S.W.

The Role of Forest Openings

By E. V. Richards
Staff Officer
Chattahoochee-Oconee National Forests

Photos courtesy of National Forest Service

The deer hunter was motionless as he leaned against the large white oak. Momentarily he rested his eyes from the strain and concentration of watching the forest opening ahead. The gray shadows of early morning still lay across the area. He recalled his scouting of the area the previous weekend and how the well-traveled deer paths followed the contours of the ridge to the forest opening. But it was the plentiful deer signs—the close cropping of the green brier, the heavy browsing of the honeysuckle, gum and dogwood sprouts, and the deer trail following the clearing edge that made him select the white oak for his deer stand. This was a good spot he thought—just a matter of time! He waited. It was opening day.

This little story is repeated many times every hunting season in the mountainous areas of Georgia, as hunters learn that forest openings or clearings have a special attraction for wild animals. Game use is more concentrated and hunting opportunities usually are better near a forest opening than in deep forest conditions.

But what is the role of a forest opening? What makes them so important to wildlife?

Forest openings are an integral part of the forest, islands in the vast oceans of trees that are vital to wildlife. Many birds and animals depend on openings in the forest canopy to supply suitable areas for feeding, nesting and resting.

Openings in the forest always have been created naturally by fire, windstorm, insect or disease. But early man recognized the value of such openings for his food, and Indians used fire to establish and maintain forest openings and grass savannahs.

Here in Georgia on the Chattahoochee National Forest and throughout the entire Appalachian mountain chain, large blocks of rugged mountain forest, mostly pole-size timber, contain few openings. Take an airplane ride over the mountains and you will be amazed at the solid unbroken forest that stretches beyond your view: continuous hardwood forests extend monotonously with their dense canopies shading out all but the most shade-tolerant undergrowth.

Game populations do exist in these areas, but not to the optimum number possible. Higher game populations are obtained in mixtures of mature forest, young forest, brush areas and open fields. High animal populations are most likely to be found where the basic needs of feeding, resting and nesting are available within the crusing radius of the animals.

Forest openings or clearings supply these requirements through the "forest edge" along their perimeters, the brushy transition zone between field and forest. This portion of the forest environment provides a diversity of food and cover found no other place; here grass, annual growths, vines, shrubs and small trees produce the variety of seeds, fruits, berries and nuts so vital to wildlife. This vegetative zone receives the right amount of sunlight to stimulate sun-loving plants. A forest opening is also an area of high food production in the form of insects and small animal life.

On the 728,000 acre Chattahoochee National Forest, stretching across the northern part of the state, and the smaller 103,000 acre Oconee National Forest, located southeast of Atlanta, many forest clearings are being purposely created for game use by the U.S. Forest Service and the Game and Fish Division of the Georgia Department of Natural Resources. These areas, created by heavy bull-dozers, are limed and fertilized and then seeded to grass, legume or grain mixtures as part of the cooperative wildlife program in which the U.S. Forest Service and the Georgia Department of Natural Resources are partners. Once grass and clover sods are established, the areas are periodically mowed and top dressed to maintain their usefulness.

Other useful openings result from the improvement of abandoned mountain farm home sites. Scores of these areas, often neglected for a decade or more, are being reclaimed by cutting or mowing the invading trees and brush.

Hundreds of acres of temporary openings occur each year as national forest timber is sold. Such timber sales in mountainous areas average less than fifty acres, but they result in irregular forest openings which attract deer, grouse and rabbits immediately and over the long range improve the overall habitat for other species.

Maintained power line right-of-ways like the one shown above and proper timber harvests such as that shown below provide openings for early succession plant species that benefit wildlife. Such early-succession plant species might otherwise not be found in a mature forest.

People seldom realize that the forest is continually changing as it grows older. Forest openings continually are being created by mother nature through such agents as wild-fire, severe wind storms, tornadoes, cyclones, ice storms, and insects or disease. All such openings are temporary. Nature quickly produces a vegetative covering on every acre, giving the forest the variety and interspersion of food and cover vital to all wild birds and animals.

The benefits are quite varied: Openings furnish the tender, sprout growth needed by deer and rabbit; green vegetation is made available to the wild turkey and ruffed grouse as increased sunlight bathes the forest floor; upland game birds and various song birds nest in or near forest openings, and grouse and turkey nests seldom are far from an opening.

Young turkey poults, baby grouse and quail require a high protein diet of insects during the first months of their lives. Old fields and openings provide grasshoppers, beetles, leaf hoppers and other insects to feed the hungry young birds.

The perimeter of clearings and old fields seed into fruit bearing shrubs, vines and sun-loving trees. Stand in a field or forest opening and look around. Notice the profusion of grapevines, green brier, blackberries, dogwoods, haws, and other seed and fruit bearing plants that occupy the transition zone between field and forest.

The forest contains additional openings in the form of pipe lines, gas lines, roads, orchards, and small farms. All are an important part of the forest habitat, and all are heavily used by wild creatures for various reasons.

So—when you look at the forest, see more than the trees! Recognize the value and role of the openings that are scattered through the expanse of trees. Learn of their importance to the creatures of the forest; you will appreciate and understand forest environment even more!

Regularly maintained forest openings planted in wildlife foods are found on all Wildlife Management Areas operated by the Game and Fish Division in cooperation with the National Forest Service.

Hotdogs, Pop, & Yellowjackets

Yellowjacket workers are often a nuisance to fishermen because they are attracted to the aromas of fresh fish.

By Jim Howell

Photos by the Author

Many campers, hikers, and other enthusiasts look forward with great anticipation to the arrival of Georgia's early spring, for it marks the first chance in several months that many families have had to get away from the drudgeries of everyday living and head for the outdoors. Unfortunately, around many campsites Georgia's outdoorsmen will find themselves catering to an unwanted guest — the yellowjacket. These annoying insects appear with the first warm days of spring, and their numbers increase rapidly to almost overwhelming proportions in late summer and fall.

There are two important species of yellowjackets in Georgia, and both have jagged bands of yellow and black on the abdomen. One species, **Vespula maculifrons,** has a solid black thorax above (the body section just behind the head), while the thorax of **V. squamosa** has 2 parallel yellow lines running most of its length. They are relatively stout-bodied wasps, compared to the more elongate **Polistes exclamans,** or "guinea wasp," with which they are occasionally confused.

In summer and early fall these black and yellow scavengers accumulate in large numbers around drink machines and trash cans, where the adults feed on the sugary liquids remaining on pop bottles, cans, or paper cups. They also become a severe nuisance in picnic areas, where they are attracted to foods such as hamburgers and hotdogs, and at times become quite bothersome to fishermen, since fresh fish is also an excellent attractant. The adults collect this meat and carry it back to their underground nest to feed the young.

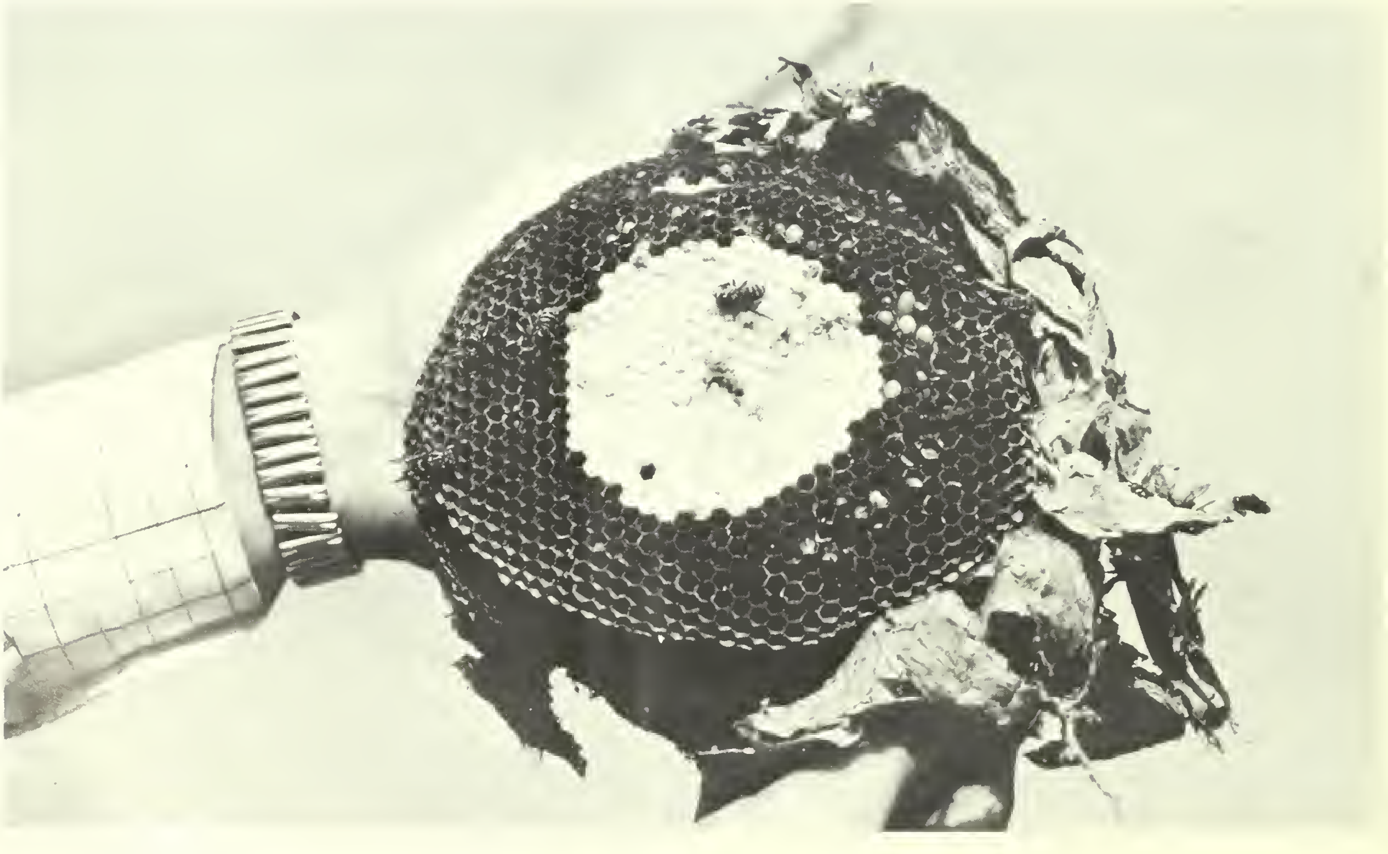
When these wasps are foraging away from their nest, they usually will not sting unless they are confined or molested. The number of yellowjackets attracted to a picnic table often is so great, however, that the meal must be abandoned for fear of provoking these unwanted guests to the point of stinging.

Perhaps the greatest danger from yellowjackets lies in accidentally disturbing their nests. These insects are extremely protective of their nest site, and become painfully aggressive when an unwary visitor ventures too near the colony. This confrontation is most common in the spring when nests constructed in lawns and hedges are accidentally disturbed by homeowners working in their yards.

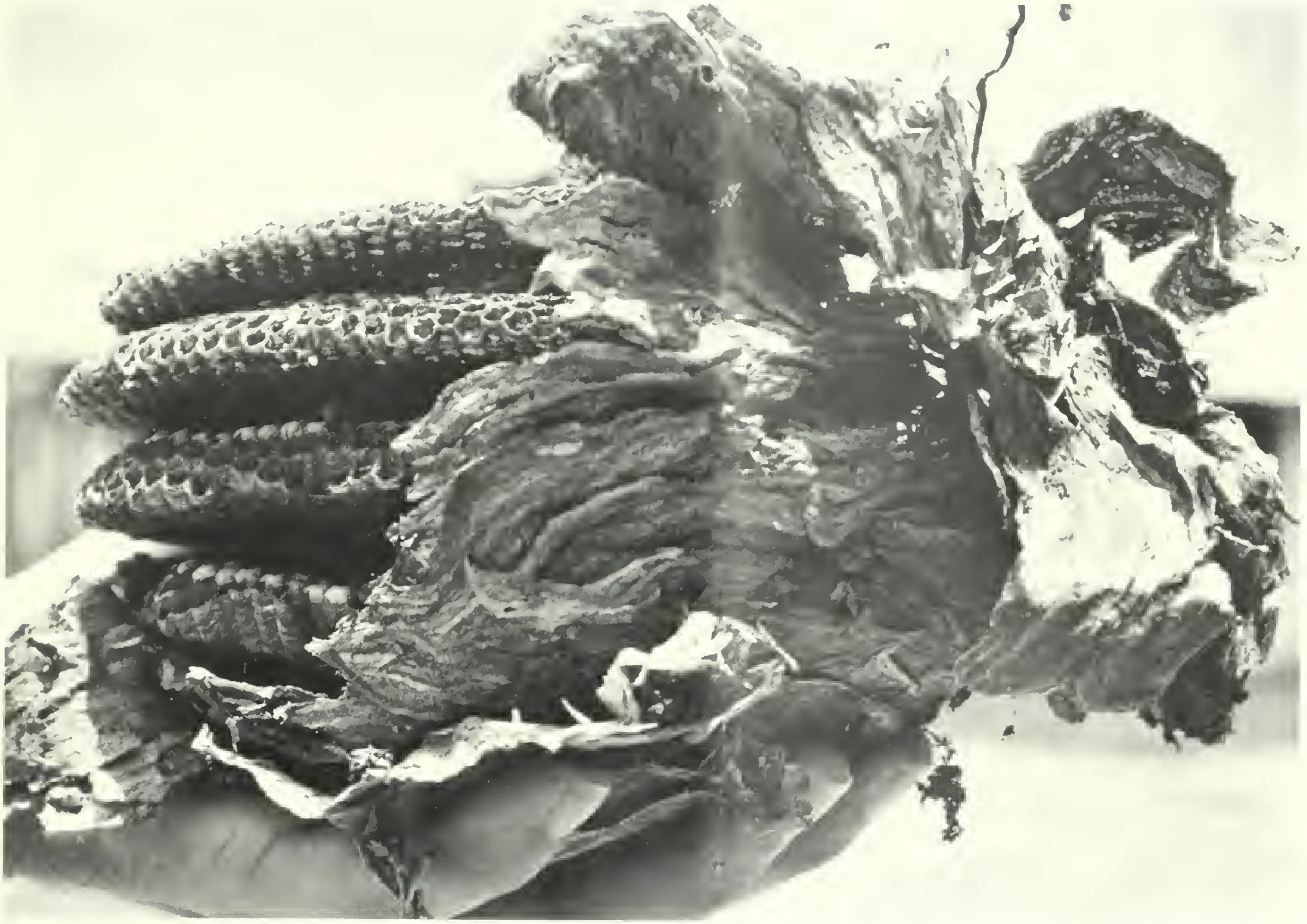
Yellowjacket nests are started in early spring by a mated over-wintering queen. The queens, which waited out the winter under stones, rotting logs, or other similar retreats, emerge and search out suitable nest sites. The yellowjacket queen usually builds underground, in such places as abandoned rodent holes, or under uprooted stumps, but occasionally its nest is made aboveground between the walls of a house, or in the cavities of a cinderblock wall.

She begins by making a small paper comb suspended by a short paper pedicel, and surrounded by one or more paper envelopes. An egg is laid in each cell of the comb, and the queen then forages for protein (meat) — usually in the form of caterpillars, flies, earthworms, or other small soft bodied animals — to feed to the developing larvae after the eggs hatch. The first adult workers that emerge from the "queen nest" usually are much smaller than those produced later in the year. Upon emergence, these young workers assume the feeding and nest construction duties of the queen. They receive nourishment through a process called "trophylaxis," in which the developing larva regurgitates some of its partially digested food and the adult wasp then feeds on this semi-liquid material. They enlarge the nest structure throughout the summer, producing a series of combs below the initial one built by the queen. The queen remains permanently in the nest, laying eggs for continuous brood production.

As the number of larvae rapidly increases, the foraging behavior of the workers intensifies. It is at this time that they are a severe nuisance in many camping and picnic areas. In the fall the queen produces eggs which develop into new queens and males. The new reproductive castes emerge from the nest and mate in flight. The queens quickly search out a wintering site, while the males remain active, visiting flowers



Yellowjacket nests are almost always constructed below ground. Unlike nests of other wasps, Vespula *nests are completely enclosed in an overlapping paper envelope. Single yellowjacket combs resemble those of other wasps. Usually 4 to 7 of these are produced in tiers to make up a complete nest.*



and watering places until cold weather kills them. They are never allowed to return to the nest.

When a yellowjacket stings, it injects a venomous fluid underneath the skin. This causes considerable pain and swelling that may last several days. These reactions may occasionally be severe or even fatal to individuals who have an acute allergy to wasp stings.

In most cases, excessive first aid treatment is of little value in treating wasp stings. An ice pack may be placed on the area to keep down swelling, and later an analgesic-corticosteroid ointment can be applied. Individuals who have an acute allergy to wasp stings should carry an epinephrine-antihistamine kit with them.

In general, yellowjackets are highly beneficial, since they capture many harmful and destructive insects as food for their young. When large numbers come in contact with man, however, some sort of control is usually sought.

When a yellowjacket's nest has been located, it can be destroyed quite easily. Treating the nest opening with a few puffs of insecticide dust containing 5 or 6% chlordane or Sevin® usually will kill the wasps in about 24 hours. Sevin® is one of the safest of all insecticides, and when applied properly is harmless to birds and mammals. In the absence of insecticides, about ½ cup of gasoline poured into the nest opening will do an excellent job. One should be aware of of the danger of using gasoline, however, and use it only in areas where no fire hazard exists. Gasoline also will kill lawn grasses and damage some shrubs. For nests in the walls of dwellings, or near certain domestic plants, chlordane or Sevin® dust is recommended. Treatments should be carried out after dark, when all the workers are at home. Treatments during daylight hours will receive a very hostile reception from workers returning to the nest.

In most cases of yellowjacket annoyance, however, the nest cannot be located. Until controls can be developed which need not be applied directly to the nest, the camper and picnicker must be content to share at least a part of his meal with this small black and yellow intruder.

Wildlife Profiles:

Channel Catfish

Catfish

By Aaron Pass

Art by Liz Carmichael Jones

CHANNEL CATFISH *(Ictalurus punctatus)*

This well known fish seems equally popular with both commercial and sport fisherman across the state due to its wide distribution and abundance.

The channel catfish is rather handsome, as catfish go, with a gray-olive or slate blue upper or dorsal surface fading to a silvery or white belly. The sides are liberally sprinkled with roundish black spots and the tail is deeply forked.

One of the larger members of the catfish family, channel cats 30 pounds and larger are caught by sport anglers and commercial fishermen report catches of fish up to 60 pounds.

This catfish is found in almost all the rivers and lakes in the state which meet its habitat requirements. This fish prefers a relatively clean bottom of sand, gravel, or boulders and is not usually found in dense cover, except while spawning.

Spawning occurs when water temperatures reach 75 degrees farenheit. Eggs are laid in a nest under an overhanging ledge, submerged log, or similar cover. The male guards the nest until the eggs hatch and the fry are able to make their own way. The nest is located in running water and those fish in lakes ascend tributary streams to spawn.

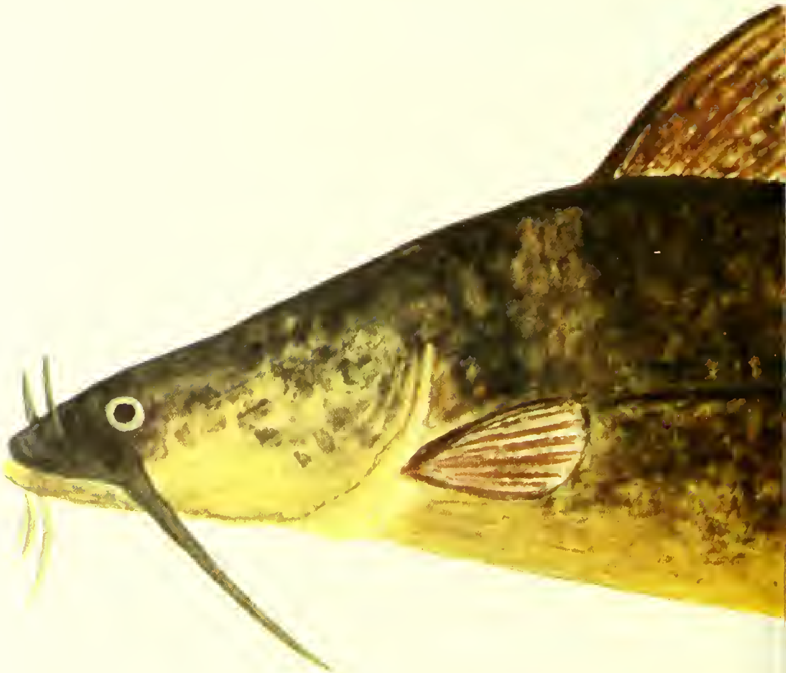
The channel cat feeds on almost anything edible that comes its way and it forages mainly at night. Sport anglers do well by fishing natural baits at night. Trotlines and jug-fishing also are excellent catfish producers.

FLATHEAD CATFISH *(Pylodictis olivaris)*

This large, square-tailed, catfish is named for its wide, distinctly flattened head. The predominate body color is light brown, mottled with blotches of darker brown. The tail fin is squarish, with the upper and lower edges being somewhat lighter in color than the rest of the fin.

The flathead's principal range in Georgia is the western portion of the state in the Tennessee and Apalachicola drainage areas. This catfish prefers the deep sluggish pools of the larger rivers with a hard bottom of rock or gravel for its habitat. Omnivorous, the flathead will eat almost anything but seems to prefer fish.

The flathead is popular with anglers throughout its range and natural bait is the top choice. The average flathead caught weighs less than 5 pounds, but this species can attain weights up to 100 pounds.

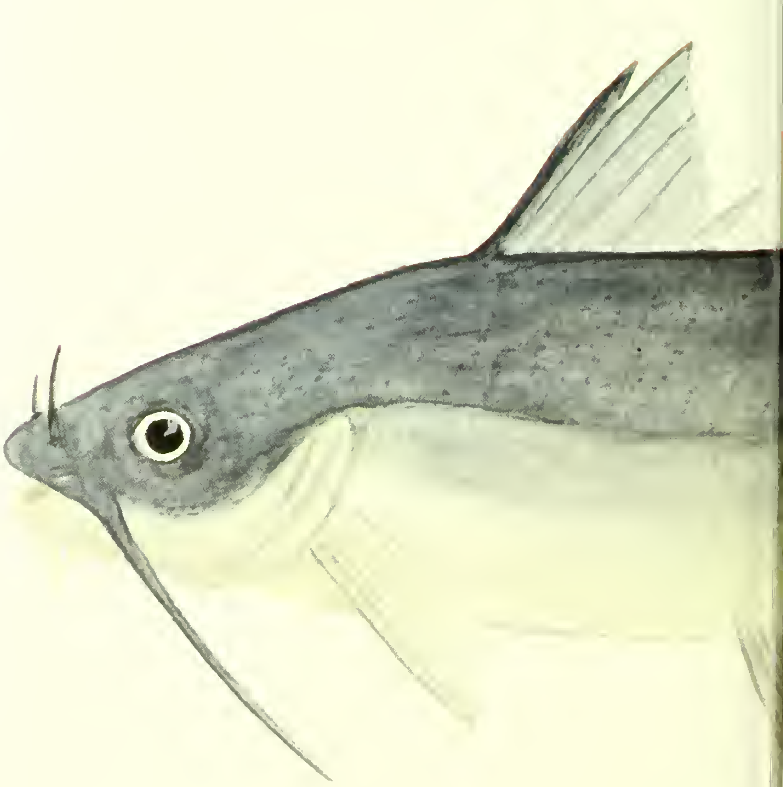


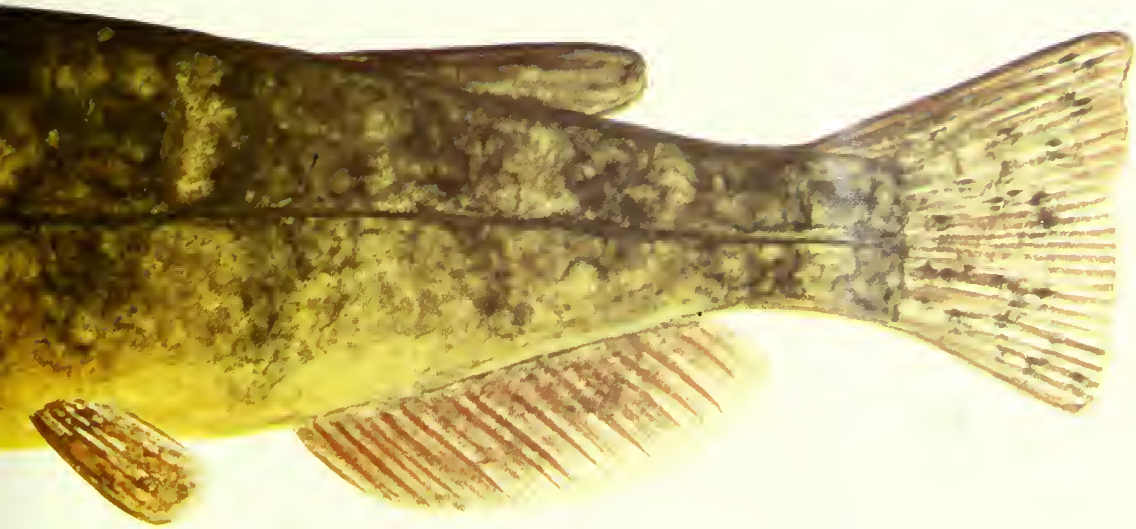
WHITE CATFISH *(Ictalurus catus)*

This comparatively small catfish closely resembles the larger channel cat in both appearance and habitat. The white cat has a slate gray to bluish back and a white or silvery belly, usually with a definite demarcation line between the two colors. Individual fish occasionally display mottling of the darker colors. The white lacks the distinct black spots and the deeply forked tail of the channel cat.

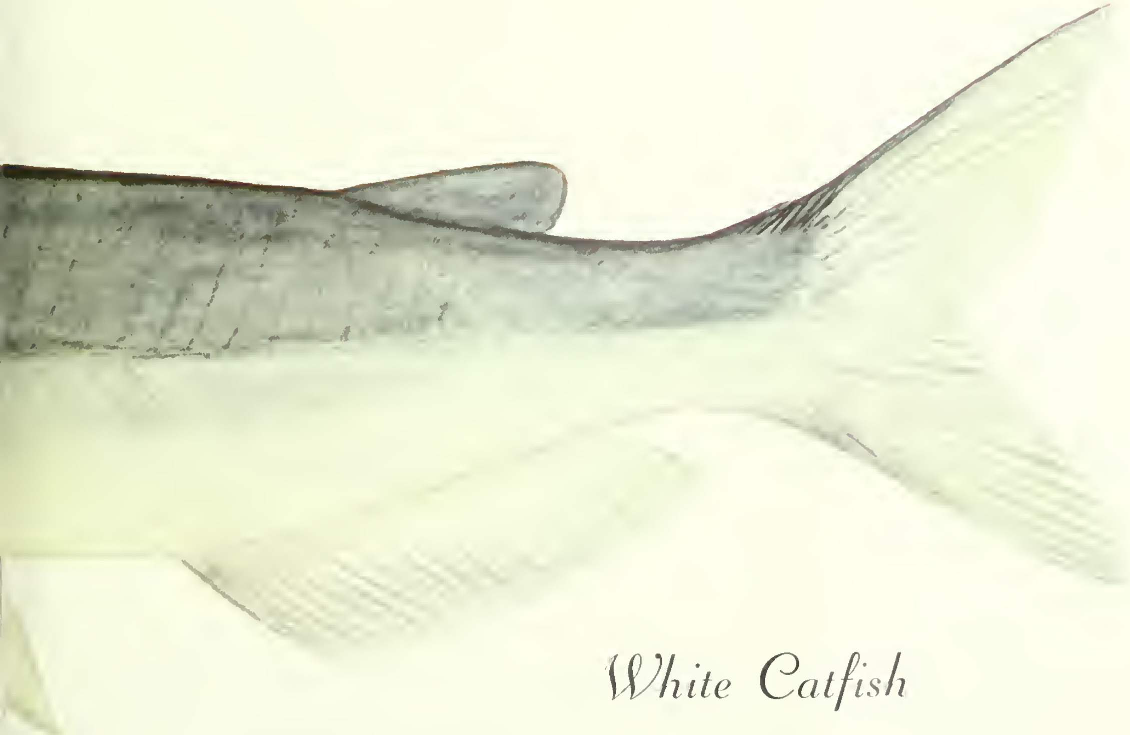
The white cat is found in both lakes and rivers, but seems to prefer less current than the channel cat will tolerate. It shows a tendency toward upstream movement during spawning.

The white catfish is highly esteemed as a food fish and sport anglers claim it has greater tendency to feed in the daylight than other catfish species. The average size of this species is from 10-18 inches and up to 3 pounds.





Flathead Catfish



White Catfish

CHATTOOGA

A river is perhaps more like a cat than a dog, for it refuses through its generations to be tamed — often cohabiting with man, never yielding to his dominion. A river flows in feline grace, plays with kittenish glee, and yes, kills with a cat's cold ferocity. No slavish obedience from cats, no fetching, no rolling over; and so it is with rivers that rampage just as man's control seemed complete.

No man can tame a wild river: he must destroy it or yield to it; there can be no compromise. Rivers can be damned, left forever to languish under man-made lakes; or their guts can be reamed, leaving a dead hulk following the old course with all the spirit of a Disney automaton. But dams and channels and locks conquer a stream only by destroying it, by so chaining up or wrenching out its essence that the remainder has value only as a vehicle for man's pleasure or profit. Less drastic measures will not suffice; for no matter how placid a river seems, no matter how long it docilely fulfills its man-ordained purpose, one day it will revert to its primordial state, mangling those that thought to use it, as a big cat will ravage its trainer.

Given these alternatives, the "reasonable" decision for years semed quite simple and straightforward: rivers are valuable only insofar as they are useful to man, and all necessary steps must be taken to bend them to man's purposes. Dams, channels, and their accompanying locks burgeoned through the land until only a very few rivers had escaped evisceration.

One of the few survivors wends its way along the far northeastern border of Georgia, forming the boundary line between our state and South Carolina. Until recently it was known only to a few — geologists, trout fishermen, foresters, kayak addicts — those who had some business in or around it. Then the marquee blared its name out in letters only slightly smaller than those heralding Burt Reynolds and Jon Voight: "See the Mighty Chattooga." Suddenly the river was "Deliverance Country."

Traffic jams spawned and reproduced and all but choked every access point; the river filled with jaunty adventurers in varied vessels — in kayaks and canoes, in rafts and rickety inflatable contraptions — each seeking in one way or another to prove himself (or herself) the star's equal; and with depressing regularity the banks echoed the calls of

Text & Photos by
T. CRAIG MARTIN

search parties seeking the remains of those whose carelessness or naivete proved terribly expensive.

The Chattooga has borne its star status fairly well so far, much as a trained leopard might. It goes its way, allowing men to come near, to gape, to go away thinking they have learned something of the wild. And it has sacrificed a few, to whet the appetite of the many.

Perhaps soon it will gain its deserved "Wild River" status, and the roads will end far away from it, and the cabins will be torn down, and the crowds will thin. In the meantime, Outdoors in Georgia *offers this photographic impression of natural beauty and those who attempt to appreciate it.*

Cattle thrive on pasture established on the reclaimed site of feldspar mining operations in Jasper County.

Reclaiming land following a large sand mining operation in DeKalb County, a bulldozer grades areas which will become lakeside slopes as the former mine site is turned into a residential area around a lake.

Mined Land Reclamation Makes NEW LIFE FOR GEORGIA ACRES

By Dick Davis

There were once high spoil banks alongside massive excavations where kaolin was mined in middle Georgia; now on the same spot there is a scenic lake stocked with bass and bream of frying pan size, bordered by grass-covered shores, surrounded by areas planted for wildlife, furnishing cover and forage for quail, deer and small game.

Once there were unattractive lowlands at a location in extreme southeast Georgia; now, following dredge mining of the much needed heavy minerals—titanium ore, monazite and zircon—there are inviting areas of increased land value and a lake teeming with fish and sometimes dotted with ducks and other migratory waterfowl. Even the original topsoil has been salvaged and placed back in position atop the land which now supports a growth of grasses.

Once in west Georgia, as iron ore was mined for the blast furnaces of Birmingham, there were gaping, long holes in the earth with high piles of overburden, and the land seemed dismembered. Now in some of those areas there are gently rolling to almost level lands covered with grasses or supporting rowcrops of corn or peanuts, or stands of planted pines.

Once in a northwest Georgia county, giant draglines dug deep into the red earth to mine valuable barite ore and the piles of excavated soil towered alongside, all within shouting distance of a major highway artery, and almost in the front doors of manufacturing plants and business establishments. Now the monstrous holes are being filled, the land is being leveled and stabilized, and prime, high-value building and commercial sites are being provided.

In such ways, Georgia's surface miners are restoring to usefulness, beauty and productivity the lands they mine to obtain the highly valuable minerals essential to life as we enjoy it. Areas of reclaimed surface-mined lands, however, often are alongside unreclaimed mined lands that still lie nonproductive and often eroding.

Mined lands in the state have been reclaimed as lakes for fishing, boating and water recreation and water conservation; for pastures and grasslands; forest lands; rowcrop lands; wildlife areas; building sites; parks, camping and recreational areas; industrial developments; and for sanitary landfills for solid waste disposal followed by planting of grasses or trees.

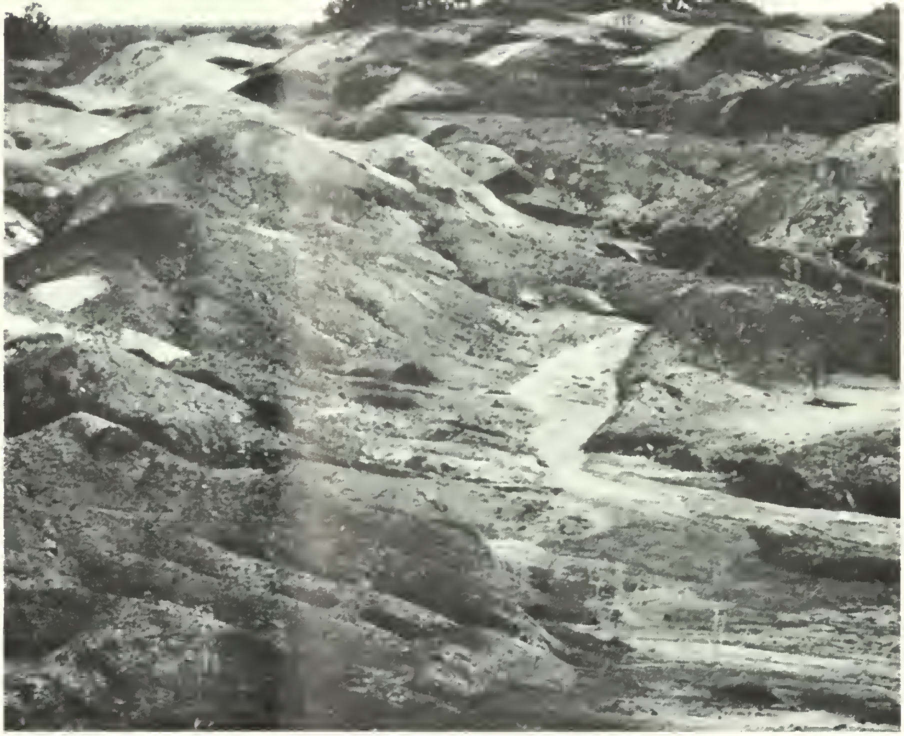
Mining is big business in Georgia and comprises a major segment of the state's economy and produces materials essential to our modern way of life. The annual value of mining production in the state now exceeds $270,000,000. There are more than 300 mining operations in Georgia in more than 100 counties. Mineral production in Georgia has increased nearly five-fold in the last two decades, and in the last ten years the value of products mined in the state has more than doubled. Our state is the seventh largest industrial mineral producer in the nation, and leads the world in the production of kaolin, the clay used widely in the production and coating of paper and in the rubber and plastics industries. Georgia leads the fifty states in the quarrying of both marble and granite.

Twenty-five commercial products are now mined in Georgia: kaolin, granite, marble, feldspar, barite, zircon, titanium ore, monazite, ochre, sand, umber, structural clays, gravel, iron ore, quartz and quartzite and chert, peat and humus, kyanite, limestone, bauxite, fuller's earth, refractory clays, coal, mica, talc, flagstone and shale.

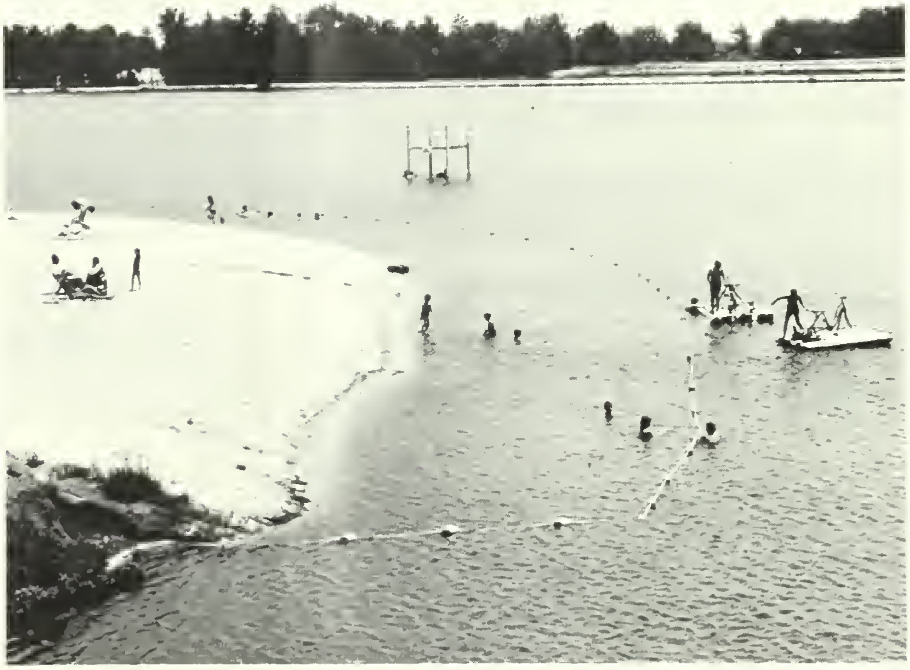
Materials from Georgia's mines provide the cement and building stone and bricks of which our homes and buildings, our highways and roadways are constructed. Georgia's mines have been a source of the steel and other metals which have made possible the industrial age and the space age. Modern communications and transportation utilize mining products. Kaolin from middle Georgia is used to coat papers for writing and printing throughout the world.

Mining products are essential to our civilization, and supply many of the necessities, comforts and luxuries of our daily lives. It is vital that mining be continued and expanded. It is also important that, as a phase of environmental protection, there be continuing land reclamation accompanying mining operations.

The mining industry of Georgia is



Unreclaimed land—this was mined for iron ore in west Georgia—was an eyesore in years prior to the start of reclamation program in the state. Lands mined near this area in recent years have been reclaimed for pastures and rowcrops.



An excellent swimming and fishing lake, with a beach and recreational area, has been developed by reclamation following kaolin mining in Washington County.

Photo by John Smith

Here's a good growth of grass on southeast Georgia lowlands reclaimed after surface mining of titanium ore, monazite and zircon. In these mining operations, pre-planning included stockpiling and replacing original topsoil on the land before replanting.

Photo by W. J. Siprelle

Far-stretching areas, formerly mined for kaolin in middle Georgia, now support a good stand of pines, returning land to productivity and restoring economic and aesthetic values.

assuming its responsibilities in reclaiming mined lands and in this way is making a major contribution to environmental quality improvement.

Georgia's licensed surface miners now number 368. The area they have effected in mining since 1969 totals more than 10,000 acres and they will reclaim an equal amount of land.

The key to effective land reclamation at reasonable cost is the simultaneous planning of mining and reclamation.. Surface mining companies in the state are now preparing reclamation plans as an integral part of mining plans, both in the opening of new mining areas and the expansion of existing mines.

Reclamation of surface mined lands on a substantial scale began with the enactment of the Georgia Surface Mining Act which became effective January 1, 1969. Some of Georgia's mining companies had begun major voluntary reclamation projects on their mined lands prior to that time.

The Georgia Surface Mining Act, as amended, requires that surface miners reclaim each year as much land as is affected by mining that year — acre-for-acre. The Act requires that all surface miners in the state be licensed by the Land Reclamation Section, Environmental Protection Division, Department of Natural Resources.

The existing Georgia surface mining regulations requiring reclamation apply only to lands surface mined since January 1, 1969. There are an estimated 30,000 acres of unreclaimed "orphan lands" in the state which were mined prior to 1969. Reclamation of these lands in future years can be a boon to environmental improvement in the state.

To obtain a license to engage in surface mining, miners must prepare and obtain prior approval of a detailed reclamation plan for all acreage to be affected by mining.

In developing reclamation plans, surface miners can choose the purpose for which lands are to be reclaimed, provided the use is of economic or social benefit and receives the approval of the Land Reclamation Section. Surface miners are also required to post bonds to insure that reclamation is completed. Posted bonds are released once reclamation of a mined area is completed and approved.

Acceptable reclamation requires

that the land be suitably graded to a rolling topography and prepared for planting or for other use. The maximum allowable slope on any area to ultimately remain above water is such that the land can be traversed by farm machinery. Such a slope will reduce erosion and facilitates replanting with a grass cover crop or trees.

When the grading is completed, areas to be developed into pastures or woodlands are fertilized and planted with grasses, legumes, or trees. Mulching is essential for rapid germination of seed. Permanent stands of grasses, other plants or trees must be established. The grasses must be uniformly distributed and cover 70% of the area. Bermuda grass, bahia grass, weeping love grass, abruzzi rye, millet, Loblolly Pine, Slash Pine, Virginia Pine, and Sycamore are the species most commonly planted. The love grass, abruzzi rye and millets provide fast developing cover crops which are used as nurse crops while permanent grasses or legumes are established on mined areas. Usually two species are utilized in the plantings, which have proved successful when started in both spring and fall.

Georgia's mining industries—large and small—are making reclamation and environmental improvement a reality as they rehabilitate mined lands across the state for the use and enjoyment of the generations to come.

Prime industrial and commercial building sites are being provided by reclamation of areas mined for barite in northwest Georgia. Active mining operations can be seen at the extreme left, graded and leveled building sites are in the center, and an area still to be filled and graded on the right.

WATER WATCHDOGS

By Suzanne Bass

Photos by the Author

The tap water in our homes that we drink and use to fill our acquarium tanks is the same water into which we blindly dump detergents for washing and to which we add chemicals of all varieties for innumerable needs. Stopping to fill our glass with water from the faucet, do we question its quality or ask whether the impurities added the day before have been removed?

On blind faith we act, assuming the efficiency of the machines that cleanse our water and the responsibility of individuals that make vital decisions about the substances that are added. But thanks partly to the efforts of the Georgia National Guard, steps are being taken to ascertain the effects of detergents with phosphate additives on specific lakes and reservoirs in the state; and also determine the efficiency of the treatment plants that remove some of the hazardous chemicals, but at the same time discharge effluents rich in nutrients.

The Georgia Guard provides the essential manpower for carrying out Georgia's portion of what is called the National Eutrophication Survey, operating under the auspices of the Federal Environmental Protection Agency, the Department of Defense and the Environmental Protection Division of the Georgia Department of Natural Resources. The response of the National Guard makes Georgia the thirteenth state to participate in the survey, which eventually will include all fifty states.

But exactly what is eutrophication and what is the aim of this survey?

Eutrophication is a process of nutrient enrichment in lakes which causes the shallows to

become choked with masses of aquatic plants. The nutrients that quicken plant growth in a lake are concentrations of phosphates and nitrates that come primarily from municipal sewage treatment plants, industrial discharges, and fertilized cropland and feedlot drainage. A balance of these nutrients is necessary for normal plant and fish growth and generally is furnished through natural runoff; but eutrophication and the subsequent rapid growth of the aquatic plants will destroy the value of a lake as a water resource. Perhaps the worst effect of eutrophication is the depleted oxygen supply and reduced water clarity that endangers such fish as trout and bass, which come to be dominated by those species better adapted to eutrophic conditions such as carp and suckers.

Thirteen Georgia lakes have been selected by the Environmental Protection Division for the year-long Eutrophication Survey. Volunteer Georgia National Guardsmen will conduct monthly sampling at the mouths of the main tributaries, above and below municipal sewage treatment plants and from treatment plant outfalls. The 100 sampling stations involve the following lakes: Allatoona, Blackshear, Chatuge, Clark Hill, Jackson, Sidney Lanier, Nottley, Seminole, Sinclair, Blue Ridge, Harding, Burton and High Falls. These lakes were chosen because they hold both potential eutrophication problems and are among the largest public lakes in the state.

The survey is an attempt to discover a lake's present trophic (nutritional) condition, its tolerance for nutrients, and the principal sources of excess nutrients entering a lake, especially where municipal sewage sources are involved. One major question is whether increased phosphate removal at a municipal sewage treatment plant will significantly improve the water quality of the lake that receives its effluent. In essence, the results of the survey will help to determine if a given lake is now in trouble, or if it looks like it may be at some point in the future. Phosphate reduction or removal then could be required through legislation, in order to insure water quality.

Phosphorous, then, is the nutrient most often implicated as a cause of eutrophication in freshwater and, occasionally, in salt or brackish water. However, the introduction of other major nutrients, such as nitrogen or trace elements of iron, manganese, and molybdenum also have accelerated the rate of eutrophication.

The brunt of this operation rests with the individual guardsmen who travel to the selected sites to obtain samples. Securing the water samples involves a carefully ordered procedure requiring a faultless standard to insure accuracy in the final analysis. Qualified instructors from the Environmental Protection Agency and the Georgia Department of Natural Resources accompanied the guardsmen on their first sampling weekend to direct the procedure and techniques for sampling. Consistency in sampling times from month to month also is a must. What other organization than the military could be better suited for scheduled dependability?

The samples are taken in bottles either lowered by a rope from a bridge or flung from the shore. The bottle then is tightly capped and a label on top is filled out with the date, time, exact location and the name of the person taking the sample.

When all the scheduled water sites have been sampled, the bottles are returned to the armory where a chemical stabilizer, mercuric chloride, is added. Mercuric chloride is a highly poisonous and potent substance that kills organic growth in the water but at the same time maintains the chemical status just as it was in the lake. This preservation of the water sample expedites the job of the person analyzing it and insures accuracy. This chemical must be added within three hours from the time the water is taken from the lake, so Guardsmen sampling in remote spots must add the chemical in the field. The samples must also be kept cool and out of the direct rays of the sun. A bulk shipment of all the samples is made once a month to the National Environmental Research Center in Corvallis, Oregon.

When the year's study is completed and the phosphate levels have been analyzed, a summary report will be prepared for each lake. This final analysis will contain a comprehensive summary, augmented by available historical facts on the lakes and the sewage treatment plants nearby. This final report will be reviewed by members of the analysis teams, the Environmental Protection Agency's regional personnel and appropriate state officials for any recommendations on control strategy for the lakes. The information revealed through this report should prove invaluable to authorities who oversee the state's water quality control programs.

So look again at that glass of water. Never take its purity or abundance for granted, but realize that measures are being sought to protect it. Come join the National Guard, the public officials, the scientists and the concerned private citizens who want to see our lakes, rivers and streams clean and beautiful forever.

Chemicals are added to the water samples to preserve the matter for later analysis. This must be done shortly after the sample is taken if the analysis is to be accurate. Each sample must be clearly identified with all pertinent data. Captain Johnny Brown and CW-4 R. Whittemore prepare the sample for transportation from the collection site to the armory.

Book Reviews

THROUGH THE FISH'S EYE by Mark Sosin and John Clark, Outdoor Life/Harper & Row, 233 pages, $7.95.

This is one of those very rare prizes, a book that every fisherman should own. Most books for anglers emphasize one or another aspect of the sport at the expense of others: coldwater buffs ignore warmwater techniques, saltwater fishermen snear at freshwater aficiandoes. But Sosin and Clark cut across the boundaries imposed by techniques to present a book that will be invaluable to anyone interested in gamefish.

Subtitled "An Angler's Guide to Gamefish Behavior," the book summarizes in a very readable form a great deal of professional research on species of interest to sportsfishermen. But even well-written summaries of scientific data can be deadly boring if the information isn't made relevant to the reader. Sosin and Clark sustain our interest by relating each bit of information to practical problems every fisherman must face at one time or another during his career.

For example: we all know that fish seem to feed less during cold weather, but Sosin and Clark inform us that digestion in a largemouth bass that might take 18 hours during the summer may take more than four days in the winter.

We know that trout feed on various aquatic insects, but that it sometimes is hard to tempt big trout with dry flies. In THROUGH THE FISH'S EYE, we learn that both brown and rainbow trout shift over to a primary diet of fish quite abruptly after they reach a size somewhere between 9 and 12 inches.

Saltwater fishermen know that bucktails or jigs are deadly in bright sunlight, but less successful in dim light. Sosin and Clark suggest that a strip bait will improve our luck by adding a smell to attract gamefish into the area so they can see the bait.

This collaboration between a noted

writer and respected fisheries biologist should lead the way to other such joint efforts. Its only problem is that it does not contain a bibliography, which is rather surprising, since Clark probably would never have considered publishing any of his 50 or so scientific papers without one. It is unfortunate that they left out the bibliography, but it's not enough of a drawback to avoid buying the book.

For we all need to know more about our quarry. Not just to capture him more efficiently, although this book ought to help in that; but because any sportsman should try to understand and respect his game. THROUGH THE FISH'S EYE provides a marvelous introduction to the world of our finned quarry.

—*TCM*

WILD RIVER, by Laurence Pringle, J. B. Lippincott Co., 128 pages, $15.00

A beautiful book about a beautiful subject, WILD RIVER should be read by everyone and treasured by those who love rivers. Detailed yet interesting narrative accompanies beautiful photographs.

Undoubtedly WILD RIVER is the best treatment of the complex riverine eco-system that this reader has seen. A major fault, however, is a lack of space given to the lowland river; although the Suwannee is mentioned several times, the Altamaha is not, and much of the book is applicable to coldwater streams alone.

Few rivers remain in the whole country that can be called wild — and even fewer can be fitted into the bureaucratic definition of a wild river. Georgia is fortunate enough to have a few wild rivers and portions of wild rivers left, regardless of semantic nuances.

—*BW*

BACKPACKER'S DIGEST by C. R. Learn and Anne S. Tallman, Digest Books, Inc., 288 pages, $5.95 (paperbound).

Digest books are a lot like R-rated movies: they sometimes manage to titillate your interest, but rarely manage to satisfy your desires. The BACKPACKER'S DIGEST by Learn and Tallman is no different.

This profusely illustrated volume purports to examine "every facet of the sport," but to extract the information is like trying to count the facets of a wedding ring while shaking hands with the bride. From first aid to photography, from packs to parkas, the authors flit back and forth, lighting here and there to toss off a tidbit or two before darting off into something else.

Unless you particularly enjoy looking at pictures, you'd be better off passing up this rather badly written tome in favor of one of the books reviewed here in March. Either Fletcher's COMPLETE WALKER or Wood's PLEASURE PACKING will give you more useful information more coherently. Fletcher's, particularly, will help you appreciate the unique rewards of this rather un-American sport that involves so much walking and so little riding.

The problem with this "digest," as with many of the works spawned by the new backpacking craze, is that it lacks any coherent overview of the sport, any sense that there might just be an aesthetic unique to this endeavor. Oh, the authors are aware of the more overt **ethics** of the sport: don't litter, don't start uncontrollable fires, don't do anything to demean the next guy's experience.

But that there might be something more important about backpacking than is paraphernalia seems to escape them. And so this book intended for beginners omits a reasoned discussion of **why** one might want to backpack. The authors provide a quotation from a "renowned backpacker" that suggests a gaggle of arguments in support of the sport, but its very eagerness obscures the goal: backpacking, we find, will bring us closer to nature, work us into good health, draw us night unto fishing and hunting paradises, help us weld a more perfect union with our families.

All of which leads us to see backpacking as a utilitarian endeavor, a means to some end beyond itself. So, of course, a book on backpacking must also introduce us to citizen's band radios and fishing rods, binoculars and knives, guns and cameras. But to help us to slow the freeway pace our lives have taken on is beyond the purview of these books. And to help us understand and appreciate the tiny bits of wildness we have left? Well, there's only so much room in a book, you know . . .

—*TCM*

FLY FISHING DIGEST by Bill Wallace, Digest Books Inc., 256 pages, $4.95 (paperbound)

Like many other Digest Books, FLY FISHING DIGEST contains a few tidbits for the veteran, but makes a more satisfying main course for the novice. While the experienced, especially among fly fishermen, want technical information, the novice is happy if he can find a lot of general information without a great deal of effort. The FLY FISHING DIGEST is for the latter group, and is especially worth reading by those who think they might like to take up fly fishing.

Wallace is experienced fly fisherman and his comments are based on field observations. He says, "When I first started fly casting . . . I went up rivers, down canyons, fished smaller lakes and ponds, but the total take for 2 weeks was only 3 small brook trout, the biggest running all of 10 inches. Actually I hooked 4, but a seagull swooped down and grabbed one before I could get it to shore."

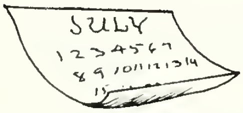
Good basic information is given on knots, lines, backing, and leaders; an overview of various tackle commercially available is included. One section of the book is devoted to teaching the novice to fly cast in thirty minutes —no, it won't make an expert out of you in thirty minutes, but is well worth reading before, and after, your first attempt with a fly rig, but you will have a better grasp of the principles involved and know what you are *trying* to do.

A fly fisherman's look at some of the freshwater species that are frequently fished for with flies is also included. For those who want to really get into it, there is a 60-page chapter explaining how to tie your own flies; and a directory of fly tackle and tying material will help locate uncommon supplies.

For the knowledgable fly fisherman, the book has little to offer, but for the beginner, FLY FISHING DIGEST provides a simple introduction to this fascinating fishing technique.

—*BW*

Outdoor Calendar



Campers in 20 of Georgia's state parks will be treated to an original drama played under the stars this summer. TOKALITTA, a play about the early settlement of Savannah and relations between Indians and settlers there, will be presented by students from DeKalb Community College. The play was written by Jon Downs, director of the school's Speech and Drama Department, and is produced by the Parks and Recreation Division of the Department of Natural Resources.

There will be no admission charge to the performances, which will begin at 8:30 p.m. on the following dates:

Amicalola Falls — August 9
Blackburn — July 12
Cloudland Canyon — July 6, August 3, August 31
Fort Mountain — July 5, August 2, August 30
Franklin D. Roosevelt — July 8, August 5, September 2
Elijah Clark — August 18
Georgia Veterans — July 26, August 23
Hard Labor Creek — July 22, August 19
High Falls — July 19
Indian Springs — July 21, August 16
John Tanner — July 7, August 4, September 1
Little Ocmulgee — June 30, July 28, August 25
Magnolia Springs — July 20, August 17
Mistletoe — July 21
Ocmulgee National Monument — July 1, July 29, August 26
Red Top Mountain — August 2, August 29
Reed Bingham — July 27, August 24
Tugaloo — August 12
Victoria Bryant — July 15
Vogel — July 13, August 10

—Allen Coggins

Management Area	Stream	July	August	September
BLUE RIDGE	Jones Creek	Sat., Sun. Wed. 4th	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Montgomery	Sat., Sun. Wed., Thu.	Sat., Sun. Wed., Thu.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Nimblewill	Sat., Sun. Wed. 4th	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Noontootley	Every Day	Every Day	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Rock Creek	Sat., Sun. Wed., Thu.	Sat., Sun. Wed., Thu.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
CHATTAHOOCHEE	Chattahoochee	Sat., Sun. Wed. 4th	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Dukes	Sat., Sun. Wed., Thu.	Sat., Sun. Wed., Thu.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
CHESTATEE	Boggs	Sat., Sun. Wed., Thu.	Sat., Sun. Wed., Thu.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Dicks	Wed., Thu. Sat., Sun.	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Waters	Sat., Sun. Wed. 4th	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
LAKE BURTON	Moccasin	Sat., Sun. Wed., Thu.	Sat., Sun. Wed., Thu.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Wildcat	Sat., Sun. Wed. 4th	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
LAKE RUSSELL	Middle Broad	Sat., Sun. Wed.	Sat., Sun. Wed.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
WARWOMAN	Finney	Wed., Thu.	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Sarahs	Wed., Thu.	Sat., Sun.	Sat., Sept. 1 Sun., Sept. 2 Mon., Sept. 3
	Walnut Fork	Sat., Sun.	Wed., Thu.	
	Hoods Creek	Sat., Sun.	Wed., Thu.	

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